<u>WHAT IS CLAIMED IS</u>:

1.   A method of reorganizing a table in a database file while providing clients of the database file, substantially continuous access to data stored in the table, the method comprising:

5   reorganizing data of an original table by copying the data to a reorganized table;

during the copying, allowing modifications to the data of the original table while collecting records of the modifications;

when the copying completes, applying the modifications from the

10   collected records against the reorganized table;

applying a first trigger lock to the original table, the first trigger lock blocking select data modification operations against the original table while allowing other operations against the original table;

applying any remaining modifications from the collected records against

15   the reorganized table;

applying a second trigger lock to the reorganized table, the second trigger lock blocking select data modification operations against the reorganized table while allowing other operations against the reorganized table;

substituting the reorganized table for the original table; and

20   removing the second trigger lock.

2.   The method of Claim 1, wherein the other operations allowed by at least one of the first and second trigger locks comprises one or more structural modification operations.

25

3.   The method of Claim 1, wherein the other operations allowed by at least one of the first and second trigger locks comprises one or more read-only operations.

-30-

4.   The method of Claim 1, further comprising:

during the application of the modifications from the collected records against the reorganized table, allowing additional modifications to the data of the original table while collecting additional records of the additional modifications; and

5

when the modifications and at least portions of the additional modifications have been applied against the reorganized table, applying the first trigger lock to the original table;

wherein the step of applying any remaining modifications includes

10

applying any remaining modifications or additional modifications against the reorganized table.

5.   The method of Claim 1, wherein when the original table included one or

15

more relational constraints, the method further comprises applying at least one of the one or more relational constraints to the reorganized table.

6.   The method of Claim 5, wherein the application of the at least one relational constraint to the reorganized table includes applying a trigger procedure to the

20

reorganized table.

7.   The method of Claim 5, wherein the application of the at least one relational constraint to the reorganized table includes applying a trigger lock to another table.

25

8.   The method of Claim 1, wherein the original table includes a table name, and wherein the step of substituting the reorganized table for the original table further comprises renaming the original table another name and naming the reorganized table the table name.

30

9.   The method of Claim 1, further comprising archiving the original table.

-31-

10.   The method of Claim 1, wherein the copying of the data of the original table to the reorganized table further comprises creating an original synchronization point, after which the records of modifications are collected.

11.   The method of Claim 1, wherein before the application of the second trigger lock, the original table and the reorganized table are in synchronization with one another.

12.   A lock for blocking select operations against a object of a database file while allowing other operations against the object, the lock comprising:

one or more actions which block the execution of select data modification operations against an object by returning an error message in response to the select data modification operations; and

one or more statements which, when attempted against the object, cause the one or more actions to be executed.

13.   The lock of Claim 12, wherein the one or more statements include at least one of insert, update, and delete.

14.   The lock of Claim 12, wherein the lock is formed from a procedure implemented within a database management system.

15.   The lock of Claim 12, wherein application of the lock to the object provides for execution of multiple structural modification operations against the object.

-32-

16. A method of reorganizing a table within a database file, the method comprising:

inserting a first marker into a log file containing records of modification operations against an original table, wherein the insertion occurs when data of the original table starts to be copied to a reorganized table;

inserting a second marker into the log file when the data of the original table is finished being copied to the reorganized table;

inserting a third marker into the log file when select data modification operations are blocked from executing against the original table;

collecting the records of the modification operations from the log file occurring after the first marker and up until the third marker; and

applying the modification operations of the collected records to the reorganized file after determining that the second marker has been inserted.

SUB A37 17. The method of Claim 16, further comprising using a dummy table to insert at least one of the first, second, and third markers.

18. The method of Claim 16, wherein a first thread of execution controls the insertion of the first, second, and third markers, while a second thread of execution controls the collection of the records of the modification operations and the application of the modification operations to data of the reorganized file.

SUB A47 19. A method of reorganizing an object in a database, the method comprising:

reorganizing an original object by copying data from the original object to a reorganized object; and

applying a trigger lock to the original object, the trigger lock blocking data modification operations from modifying the original object while allowing other operations to access the original object.

20. The method of Claim 19, wherein the other operations include one or more read-only operations.

-33-

21.   The method of Claim 19, wherein the other operations include one or more structural modification operations.

5

22.   A method of reorganizing an object in a database file, the method comprising:

reorganizing an original object by copying data from the original object to a reorganized object; and

applying a trigger lock to the reorganized object, the trigger lock

10   blocking data modification operations from modifying the reorganized object, while allowing other operations to access the reorganized object.

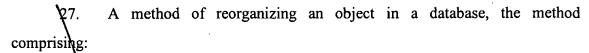23.   The method of Claim 22, wherein the other operations include one or more read-only operations.

15

24.   The method of Claim 22, wherein the other operations include one or more structural modification operations.

25.   The method of Claim 24, wherein the one or more structural

20   modification operations include consecutive data definition language operations.

26.   A method of reorganizing an object in a database file, the method comprising:

reorganizing an original object by copying data from the original object

25   to a reorganized object;

when the original object included one or more relational constraints, applying at least one of the one or more relational constraints to the reorganized object; and

allowing at least read-only access to the reorganized object while

30   applying the at least one or more relational constraints.

27. A method of reorganizing an object in a database, the method comprising:

reorganizing an original object by copying data from the original object to a reorganized object;
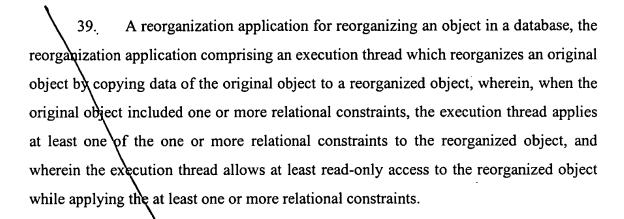
substituting the reorganized object for the original object; and

allowing read-only access to the data during at least a portion of the process of substituting the reorganized object for the original object.

28. The method of Claim 27, wherein the read-only access to the data includes read-only access during multiple data definition language operations.

29. A reorganization system, comprising:

at least one database file having a table of data and a log file;

a database management system communicating with the at least one database file, thereby governing the modification of the data in the table; and

a reorganization application communicating with the database management system to access the table and communicating with the database file to access the log file, wherein the reorganization application is configured to copy the data of the table to a reorganized table, to apply modifications from the log file corresponding to modifications to the table during the copying of the data, and to substitute the reorganized table for the table, thereby reorganizing the data of the table.

30. The reorganization system of Claim 29, wherein the reorganization application is further configured to apply a trigger lock to the table, thereby blocking select data modification language operations while allowing at least read-only operations.

31. The reorganization system of Claim 29, wherein the reorganization application is further configured to apply a trigger lock to the reorganized table, thereby blocking select data modification language operations while allowing one of one or more read-only operations and one or more data definition language operations.

-35-

32. A reorganization application for reorganizing an object in a database, the reorganization application comprising an execution thread which reorganizes an original object by copying data of the original object to a reorganized object, and which applies a trigger lock to the original object, wherein the trigger lock blocks data modification operations from modifying the original object while allowing other operations to access the original object.

33. The reorganization application of Claim 32, wherein the other operations include one or more read-only operations.

34. The reorganization application of Claim 32, wherein the other operations include one or more structural modification operations.

35. A reorganization application for reorganizing an object in a database, the reorganization application comprising an execution thread which reorganizes an original object by copying data of the original object to a reorganized object, and which applies a trigger lock to the reorganized object, wherein the trigger lock blocks data modification operations from modifying the reorganized object while allowing other operations to access the reorganized object.

36. The reorganization application of Claim 35, wherein the other operations include one or more read-only operations.

37. The reorganization application of Claim 35, wherein the other operations include one or more structural modification operations.

38. The method of Claim 37, wherein the one or more structural modification operations include consecutive data definition language operations.

-36-

39. A reorganization application for reorganizing an object in a database, the reorganization application comprising an execution thread which reorganizes an original object by copying data of the original object to a reorganized object, wherein, when the original object included one or more relational constraints, the execution thread applies at least one of the one or more relational constraints to the reorganized object, and wherein the execution thread allows at least read-only access to the reorganized object while applying the at least one or more relational constraints.

40. A reorganization application for reorganizing an object in a database, the reorganization application comprising an execution thread which reorganizes an original object by copying data of the original object to a reorganized object and which substitutes the reorganized object for the original object, wherein the execution thread also allows read-only access to the data during at least a portion of the substitution of the reorganized object for the original object.

41. The reorganization application of Claim 40, wherein the read-only access to the data includes read-only access during multiple data definition language operations.

42. A method of controlling operations against an object, the method comprising applying a trigger lock to an object, wherein the trigger lock prevents a data modification operation that modifies data associated with object, and allows one or more structural operations that modify the definition of the object.

43. The method of Claim 42, wherein the trigger lock returns an error in response to the data modification operation.

44. The method of Claim 42, wherein the trigger lock blocks select modification activity against the object in order to synchronize the data within the object with another object.

45.   A method of controlling operations against an object, the method comprising applying a trigger lock to an object, wherein the trigger lock prevents a data modification operation that modifies data associated with object, and allows a read-only operation that accesses the object.

5